TABLE 4-1 DISCHARGE PROHIBITIONS

IT SHALL BE PROHIBITED TO DISCHARGE:	DISCUSSION
1. Any wastewater which has particular characteristics of concern to beneficial uses at any point at which the wastewater does not receive a minimum initial dilution of at least 10:1, or into any nontidal water, dead-end slough, similar confined waters, or any immediate tributaries thereof.	Waste discharges will contain some levels of pollutants regardless of treatment. This prohibition will require that these pollutants, when of concern to beneficial uses, be discharged away from areas such as nontidal waters and dead-end sloughs. This prohibition will (a) provide an added degree of protection from the continuous effects of waste discharge, (b) provide a buffer against the effects of abnormal discharges caused by temporary plant upsets or malfunctions, (c) minimize public contact with undiluted wastes, and (d) reduce the visual (aesthetic) impact of waste discharges.
2. Any wastewater which has particular characteristics of concern to beneficial uses to San Francisco Bay south of the Dumbarton Bridge.	This prohibition is consistent with the 1974 Bays & Estuaries Policy. This area is one that has experienced chronic water quality problems.
3. Any wastewater which has particular characteristics of concern to beneficial uses to Suisun Marsh during the dry weather period of the year. Local irrigation return water is excepted in quantities and qualities consistent with good irrigation practices.	The threat of high concentrations of toxicants, biostimulants, and oxygen-demanding substances in Suisun Marsh, an area of low assimilative capacity, great ecological sensitivity and value, and poor dispersion by tidal or freshwater flushing, necessitates such protection for the Marsh for the critical portion of the year when freshwater flows are nonexistent.
4. Any wastewater which has particular characteristics of concern to beneficial uses to Alameda Creek when no natural flow occurs.	The threat of dissolved solids, stable organics, and other pollutant accumulation in the groundwater of the basins recharged with waters of Alameda Creek is critical in the dry weather period when wastewater could account for much of the water percolating to the basin.
5. Any wastewater which has particular characteristics of concern to beneficial uses to Tomales Bay, Drakes Estero, Limantour Estero, Bolinas Lagoon, or Richardson Bay (between Sausalito Point and Peninsula Point).	Tomales Bay, Drakes Estero, and Limantour Estero are nearly pristine bodies of water and of great value for wildlife habitat and as recreational and scientific study areas. Bolinas Lagoon and Richardson Bay both have poor dispersion capability and low assimilative capacity. They have experienced high coliform, nutrient, and algal concentrations. This prohibition will provide protection for the intensive recreational beneficial uses of these water bodies
6. All conservative toxic and deleterious substances, above those levels which can be achieved by a program acceptable to the Regional Board, to waters of the Basin.	The intent of the prohibition is to minimize the discharge of persistent toxicants into waters, thus protecting aquatic life and public water supplies. The prohibition recognizes that these substances can be most economically reduced at their source.
7. Rubbish, refuse, bark, sawdust, or other solid wastes into surface waters or at any place where they would contact or where they would be eventually transported to surface waters, including flood plain areas.	The prohibition is intended primarily to protect recreational uses, including boating and navigation. Floating rubbish can also impair suitability of waters for industrial cooling and other diversions by endangering pumps. This prohibition is in conformance with the Bays and Estuaries Policy.
8. Floating oil or other floating materials from any activity in quantities sufficient to cause deleterious bottom deposits, turbidity or discoloration in surface waters.	The prohibition is intended to protect birds and other wildlife from the possible toxic effects of floating oil or oil deposits. Waterfowl and shorebirds in particular can be affected through coating of feathers and loss of thermal insulation. This prohibition is also intended to prevent visual nuisance that would be caused by floating oil or by its deposition on shore or on structures and to protect recreational uses which would be impaired by oil deposited on boats, other equipment, or persons.

TABLE 4-1 DISCHARGE PROHIBITIONS (CONTINUED)

IT SHALL BE PROHIBITED TO DISCHARGE:	DISCUSSION
9. Silt, sand, clay, or other earthen materials from any activity in quantities sufficient to cause deleterious bottom deposits, turbidity or discoloration in surface waters or to unreasonably affect or threaten to affect beneficial uses.	This is in conformance with the Bays and Estuaries Policy. The intent of this prohibition is to prevent damage to the aquatic biota by bottom deposits which can smother non-motile life forms, destroy spawning areas, and, if putrescible, can locally deplete dissolved oxygen and cause odors. The prohibition would also prevent discoloration and/or turbidity that can be caused by silt and earth. As one measure of compliance with this prohibition, design and maintenance of erosion and sediment control structures should comply with accepted engineering practices as identified in ABAG's Manual of Standards for Erosion and Sediment Control Measures. Turbidity or discoloration caused by dredging is covered by the Regional Board's policy on dredging (see section under nonpoint source control).
10. Sludges of municipal or industrial waste origin and sludge digester supernatant, centrate, or filtrate directly to surface waters or to a waste stream that discharges to surface waters without adequate treatment in conformance with waste discharge requirements.	The intent of this prohibition is to preclude a major potential source of bottom deposits, which could smother aquatic biota and cause localized dissolved oxygen depletion. Some sludges contain floatable material which would cause visual nuisance. Some industrial sludges contain persistent toxic matter. If discharged without adequate treatment, digester supernatant, centrate, and filtrate are generally septic and would cause odors, discoloration, and dissolved oxygen depletion.
11. Biocides of a persistent or cumulative form which have particular characteristics of concern to beneficial uses when applied where direct or indirect discharge to water is threatened except where net environmental benefit can be demonstrated to the satisfaction of the Regional Board. A management plan for the use and control of biocides in these cases must be approved by the Regional Board.	It is the intent of this prohibition to prevent, as much as practicable, the entrance into the aquatic environment of persistent and/or cumulative biocides (pesticides, herbicides, copper, etc.). This is necessary to minimize the toxic effects of these substances on the aquatic biota.
12. Radiological, chemical, or biological warfare agents or high level radioactive waste.	The intent of the prohibition is to protect human and aquatic life from the adverse effects of these materials.
13. Oil or any residuary product of petroleum to the waters of the state, except in accordance with waste discharge requirements or other provisions of Division 7, California Water Code.	Discharge of oil or residuary products of petroleum is also prohibited under the Fish and Game Code.
14. Sewage-bearing wastewater to individual leaching or percolation systems in the Stinson Beach area of Marin County, the Glen Ellen area of Sonoma County, and the Emerald Lake Hills and Oak Knoll Manor areas of San Mateo County, as specified in Regional Board Resolutions (Chapter 5) and sections in this chapter on groundwater protection and on-site wastewater systems.	The intent of this prohibition is to prevent degradation of groundwater from septic systems in these areas.
15. Raw sewage or any waste failing to meet waste discharge requirements to any waters of the Basin.	The intent of this prohibition is to protect the public and the aquatic environment from the effects of raw or inadequately treated waste discharges.
16. Waste that is not a sufficient distance from areas designated as being of special biological significance to assure maintenance of natural water quality conditions in these areas.	The intent of this prohibition is to protect the relatively pristine nature of these special areas.
17. Waste so as to alter the total dissolved solids or salinity of waters of the state to adversely affect beneficial uses, particularly fish migration and estuarine habitat.	The intent of this prohibition is to prohibit the discharge of excessively salty water to streams and the Bay-Delta system.
18. Sewage, whether treated or untreated, from any vessel into that portion of Richardson Bay bounded by the shore and by a line bearing 257 degrees from Peninsula Point to the shore at Sausalito, in Marin County.	The intent of this prohibition is to prevent high bacteriological counts in Richardson Bay due to significant sewage discharges from vessels.

TABLE 4-2 EFFLUENT LIMITATIONS FOR CONVENTIONAL POLLUTANTS

(ALL UNITS IN MG/L, EXCEPT AS OTHERWISE NOTED)

PARAMETERS:	30-DAY AVERAGE	7-DAY AVERAGE	DAILY MAXIMUM	INSTAN-TANEOUS LIMIT	SEVEN-SAMPLE MEDIUM	FIVE-SAMPLE MEDIUM
Biochemical Oxygen Demand (BOD5) [a,b]	30	45				
Suspended Solids (SS) [a]	30	45				
85% removal of BOD5 and SS [a,c]						
Total Coliform Organisms [a,d] (in MPN/100ml)						
- Shallow Water Discharge [e] (in immediate vicinity of public contact or shellfish harvesting)			240		2.2	
- Deep Water Discharge			10,000			240
pH [f] (in pH units)						
- Shallow Water Discharge				6.5-8.5		
- Deep Water Discharge				6.0-9.0		
Residual Chlorine [f] (free chlorine plus chloramines)				0.0		
Settleable Matter [f, g] (in ml/l-hr)	0.1		0.2			
Oil & Grease [f]	10		20			

NOTES:

a. These effluent limitations apply to all sewage treatment facilities that discharge to inland surface waters and enclosed bays and estuaries. The Board may also apply some of these limitations selectively to certain other non-sewage discharges, but they will not be used to preempt Effluent Guideline Limitations established pursuant to Sections 301, 302, 304, or 306 of the federal Water Pollution Control Act, as amended. (Such Effluent Guideline Limitations are included in NPDES permits for particular industries.)

b. The federal regulation allows the parameter BOD to be substituted with Carbonaceous BOD at levels that shall not exceed 25 mg/l as a 30-day average, nor 40 mg/l as a 7-day average.

c. The arithmetic mean of the biochemical oxygen demand (5-day, 20°C) and suspended solids values, by weight, for effluent samples collected in any month shall not exceed 15 percent of the arithmetic mean of the respective values, by weight, for simultaneous influent samples

d. (1) The Regional Board may consider substituting total coliform organisms limitations with fecal coliform organisms limitations provided that it can be conclusively demonstrated through a program approved by the Regional Board that such substitution will not result in unacceptable adverse impacts on the beneficial uses of the receiving water.
(2) The Regional Board may consider establishing less stringent requirements for any discharges during wet weather.

e. Exceptions to these requirements may be granted by the Regional Board where it is demonstrated that beneficial uses will not be compromised by such an exception. Discharges receiving such exceptions shall not exceed a five-sample median of 23 MPN/100 ml nor a maximum of 240 MPN/100 ml during dry weather.

f. These effluent limitations apply to all treatment facilities.

g. Discharges from sedimentation and similar cases should generally not contain more than 1.0 ml/l-hr of settleable matter. Design and maintenance of erosion and sediment control structures shall comply with accepted engineering practices as identified in the Association of Bay Area Government's (ABAG's) *Manual of Standards for Erosion and Sediment Control Measures.*

TABLE 4-3 EFFLUENT LIMITATIONS FOR SELECTED TOXIC POLLUTANTS DISCHARGED TO SURFACE WATERS[a,b,c] (in µg/l)*

	Shallow Water	Deep Water
Arsenic	20.0	200.0
Cadmium[d]	10.0	30.0
Chromium (VI)[e]	11.0	110.0
Copper[d]	20.0	200.0
Cyanide[f]	25.0	25.0
Lead[d]	5.6	56.0
Mercury	1.0	1.0
Nickel[d]	7.1	71.0
Silver[d]	2.3	23.0
Zinc[d]	58.0	580.0
Phenols	500.0	500.0
PAHs[g]	15.0	150.0

* The effluent limitations listed in Table 4-3 were adopted in the 1986 Basin Plan and have subsequently been incorporated into NPDES permits where appropriate. Certain limitations (e.g., copper, mercury and PAHs) are no longer considered to be protective of beneficial uses. However, the Regional Board intends to retain the entire Table 4-3 based on consideration of the anti-backsliding policy.

NOTES:

a. All values are 24-hr averages.
b. These limits are based on a combination of fresh and salt water quality objectives, technological achievability, limits of detection, and limited allowance for dilution. They are intended to be achieved through a combination of Best Available Technology and source control.
c. These limits apply to effluent discharges from POTWs and process water discharges from industrial facilities. The Regional Board may apply them to discharges of cooling water, runoff, or other types of discharge on a case-by-case basis, but other programs as identified in this Plan, such as Urban Runoff Management, are intended to address those discharges.
d. These values represent effluent limitations based on 100 mg/l hardness. Individual limits may be calculated based on hardness of ambient receiving waters.
e. Dischargers may at their option meet this limit as total chromium.
f. Cyanide may not persist in the environment in the same manner as the heavy metals. The Regional Board will consider information on the persistence of cyanide in evaluating alternate limit proposals.
g. As identified by EPA Method 610. If a discharge exceeds the limit for PAHs, concentrations of individual constituents should be reported.

TABLE 4-4 ACUTE TOXICITY EFFLUENT LIMITS

Discharge/Monitoring Type	At Least 90% Survival	At Least 70% Survival
Continuous discharge/ weekly or monthly tests	11-sample[a] median	11-sample 90th percentile[b]
Continuous discharge/ quarterly or annual tests	3-sample[c] median	Single-sample maximum
Intermittent discharge	—	Single-sample maximum

NOTES:

a. 11-sample median is defined as follows: If five or more of the past ten or fewer samples show less than 90 percent survival, then survival of less than 90 percent on the next sample represents a violation of the effluent limitation.
b. 90th percentile is defined as follows: If one or more of the past ten or fewer samples show less than 70 percent survival, then survival of less than 70 percent on the next sample represents a violation of the effluent limitation.
c. 3-sample median is defined as follows: If one of the past two or fewer samples shows less than 90 percent survival, then survival of less than 90 percent on the next sample represents a violation of the effluent limitation.

TABLE 4-5 CRITICAL LIFE STAGE TOXICITY TEST SPECIES AND PROTOCOLS [a]

SPECIES	BIOLOGICAL EFFECTS EVALUATED	CALIFORNIA RESIDENT	LAB VS. WILD STOCK
FRESHWATER			
Ceriodaphnia sp. (Crustacean)	survival, reproduction	N	Lab
Pimephales promelas (Fathead minnow)	survival, growth	Y	Lab
Selenastrum capricornutum (unicellular algae)	cell division rate	N	Lab
MARINE			
Mysidopsis bahia (Crustacean)	survival, growth, fecundity	N	Lab
Molluscs Mytilus edulis (mussel) Crassostrea gigas (oyster) Halotis rufescens (abalone)	embryo development, survival	Y	Wild or Field-cultured
Echinoderms Strongylocentrotus purpuratus, S. franciscanus (urchins) Dendraster excentricus (sand dollar)	fertilization success	Y	Wild
Diatom Plants Skeletonema costatum Thalassiosira pseudonana	cell division rate	Y	Lab
Macrocystis pyrifera (giant kelp)	percent germination, germ tube length	Y	Wild
Champia parvula (red algae)	number of cystocarps	N	Lab
MARINE/ BRACKISH			
Menidia beryllina	survival, larval growth	Y	Lab

NOTES:
a. All technical references and discussion are contained in "Modified Guidelines: Effluent Toxicity Characterization Program," September, 1991, San Francisco Bay Regional Water Quality Control Board.

TABLE 4-6 CONDITIONS THAT REQUIRE MONTHLY MONITORING OF TOXICITY LEVELS

DISCHARGER MONITORING FREQUENCY	SHALLOW WATER DISCHARGERS	DEEP WATER DISCHARGERS
Quarterly		
Three-sample median[a]	> 1 TU_C	> 10 TU_C
Single-sample maximum	> 2 TU_C	> 20 TU_C
Semi-annually or annually		
Single-sample maximum	> 1 TU_C	> 10 TU_C

NOTES:
a. Exceedance of the three-sample median is defined as follows: If one of the past two or fewer samples shows greater than the toxicity threshhold listed above, then a chronic toxicity value greater than the threshhold on the next sample represents an exceedance.

TABLE 4-7 BACKGROUND CONCENTRATIONS USED IN CALCULATING DEEP WATER EFFLUENT LIMITATIONS

SUBSTANCE	ESTIMATED BACKGROUND CONCENTRATIONS SALT WATER[a,b]	FRESH WATER[a,c]
Cadmium	74.0 ng/L	34.0 ng/L
Copper	1.5 µg/L	4.5 µg/L
Lead	0.3 µg/L	1.0 µg/L
Mercury	4.0 ng/L	8.0 ng/L
Nickel	2.0 µg/L	4.4 µg/L
Silver	7.0 ng/L	11.0 ng/L
Zinc	2.0 µg/L	7.0 µg/L

NOTES:
a. Values represent total rather than dissolved concentrations.
b. Values calculated by taking averages of concentrations (9 separate sampling dates throughout 1989-1993) measured at locations in the Central Bay least influenced by known discharges as reported in two Regional Board-sponsored studies (Flegal et al., 1991 and 1992) and the *1993 Regional Monitoring Program Annual Report*.
c. Values represent averages of concentrations measured in the same studies in the Sacramento River near the confluence with the San Joaquin River.

TABLE 4-8 CONTROLLING WET-WEATHER OVERFLOWS

Levels of Water Quality Protection	Appropriate Level of Treatment
A Complete protection for areas where the aquatic environment should be free of any identifiable risk from the discharge of untreated waste (i.e., shellfish beds for year-round harvesting).	Secondary treatment up to 20-year recurrence interval; above 20-year overflows allowed.
B Areas that do not need complete year-round protection, such as shellfish beds for dry-weather harvesting, public beaches, and other water contact areas.	Secondary treatment for all flows up to two-year recurrence interval; primary treatment up to 20-year recurrence interval; above 20-year overflows allowed.
C Areas where water quality or aquatic productivity may be limited due to the pollution effects of a dense human population or other urban activities that are largely uncontrollable. Such areas may include some shipyards and harbors.	Secondary treatment to half-year recurrence interval; primary treatment to five-year recurrence interval; above five-year overflows allowed.

TABLE 4-9 PUBLICLY OWNED TREATMENT WORKS (POTWs)

POTW FACILITY NAME	OUTFALL LOCATION [a]	FLOW [b] (MGD)	TREATMENT LEVEL	DISCHARGE POINT LATITUDE	DISCHARGE POINT LONGITUDE	COMMENT
City of Benecia	1	2.30	Secondary	38 02 30	122 09 03	
City of Burlingame	2	3.30	Secondary	37 39 55	122 21 41	Discharge through North Bayside outfall
City of Calistoga	3	0.60	Advanced	38 33 34	122 33 28	W/dry weather reclamation
Central Contra Costa S.D	4	35.20	Secondary	38 02 44	122 05 55	
Central Marin Sanitation A.G.	5	8.50	Secondary	37 56 54	122 27 23	
Contra Costa Co. S.D. No. 5	6	0.01	Secondary	38 02 55	122 10 56	
Delta Diablo S.D.	7	9.61	Secondary	38 01 40	121 50 14	
EBDA, East Bay Dischargers Authority	8	50.00	Secondary	37 41 40	122 17 42	Common outfall for EBDA & LAVWMA
- City of Hayward			Secondary			EBDA member (10.0 mgd)
- Oro Loma S.D.			Secondary			EBDA member (11.3 mgd)
- City of San Leandro			Secondary			EBDA member (4.41 mgd)
- Union S.D.			Secondary			EBDA member (24.2 mgd)
East Bay MUD	9	71.50	Secondary	37 49 02	122 20 55	
Fairfield Suisun Sewer Dist.	10	12.80	Secondary	38 12 33	122 03 24	W/dry weather reclamation
City of Hercules	11	0.37	Secondary	38 03 06	122 15 55	Share outfall w/Pinole,Rodeo
Las Gallinas Valley S.D.	12	1.70	Secondary	38 01 32	122 30 58	
LAVWMA, Livermore-Amador Valley WMA	8	11.00	Secondary			Discharge to EBDA outfall
- Dublin/San Ramon S.D.			Secondary			LAVWMA member (7.7 mgd)
- City of Livermore			Secondary			LAVWMA member (3.9 mgd)
Marin Co. S.D. #5	13	0.78	Secondary	37 52 12	112 27 05	
City of Millbrae	2	2.00	Secondary	37 39 55	122 21 41	Discharge thru North Bayside outfall
Mountain View S.D.	14	1.47	Secondary	38 01 12	122 05 47	
Napa S.D.	15	14.20	Advanced	38 14 09	122 17 10	W/dry weather reclamation
N. San Mateo Co. S.D.	16	8.10	Secondary	37 42 48	122 30 50	
Novato S.D.	17	4.80	Secondary	39 04 00	122 29 00	
City of Pacifica	18	1.40	Secondary	37 37 55	122 30 30	
City of Palo Alto	19	19.00	Advanced	37 27 11	122 06 36	
City of Petaluma	20	4.20	Secondary	38 12 33	122 34 22	W/dry weather reclamation
City of Pinole	11	2.00	Secondary	38 03 06	122 15 55	Share outfall w/ Hercules, Rodeo
Rodeo S.D.	11	0.70	Secondary	38 03 06	122 15 55	Share outfall w/ Hercules, Pinole
City & Co. of S.F., Southeast	21	67.00	Secondary	37 44 58	122 22 22	
City & Co. of S.F., Oceanside	22	22.00	Secondary	37 42 18	122 34 39	
City & Co. of S.F., Int. Airport	2	0.90	Secondary	37 39 55	122 21 41	Discharge through North Bayside outfall
San Jose/Santa Clara WPCP	23	120.00	Advanced	37 26 06	121 57 08	
City of San Mateo	24	10.20	Advanced	37 34 50	122 14 45	
Sausalito-Marin City S.D.	25	1.36	Secondary	37 50 37	122 28 03	
Sewer Authority Mid-Coastside	26	1.50	Secondary	37 28 23	122 27 00	
Sewerage Agency of So. Marin	27	2.53	Secondary	37 52 12	112 27 05	
Sonoma Valley County S.D.	28	2.80	Secondary	38 14 14	122 25 51	W/dry weather reclamation
So. Bayside System Authority	29	15.00	Secondary	37 33 48	122 12 55	
So. S.F./San Bruno WQCP	30	8.70	Secondary	37 39 55	122 21 41	
City of St. Helena	31	0.34	Secondary	30 30 10	122 26 15	W/dry weather reclamation
City of Sunnyvale	32	17.10	Advanced	37 26 00	122 02 00	
Vallejo Sanitation & Flood Cont.	33	12.50	Secondary	38 03 53	122 13 42	W/dry weather reclamation
West County Agency	34	13.10	Secondary	37 54 47	122 25 06	Share outfall w/West Co. W.D.
West County Wastewater Dist.	34	6.70	Secondary	37 54 47	122 25 06	Share outfall w/West Co. Agency
Town of Yountville	35	0.36	Advanced	38 24 30	122 20 25	W/dry weather reclamation

NOTE:
a. Figure 4-1 shows corresponding outfall locatiions.
b. Dry weather flow as identified in current permits.
MGD is million gallons per day.

TABLE 4-10 MAJOR INDUSTRIAL DISCHARGERS

INDUSTRIAL DISCHARGERS	OUTFALL[a] LOCATION	INDUSTRIAL CATEGORY	TREATMENT	DISCHARGE POINT LATITUDE	DISCHARGE POINT LONGITUDE
General Chemical Corp. Bay Point Works	1	Chemical manufacturing	Neutralization/pond	38 02 48	121 59 10
C & H Sugar Co.	2	Sugar refining	Activated sludge	38 03 30	122 13 28
Chevron Chemical [b]	3	Chemical manufacturing	Pond		
Chevron U.S.A.	3	Petroleum refining	Activated sludge/wetland	37 58 15	122 25 45
Dow Chemical Co.	4	Chemical manufacturing	Neutralization/activated carbon	38 01 48	121 51 07
Exxon	5	Petroleum refining	Activated sludge/carbon	38 03 18	122 07 07
FMC Newark	6	Phosphate manufacturing	Neutralization/pond	37 30 40	122 03 20
PG&E Pittsburg	7	Steam electric power	Filtration	38 02 30	121 53 20
San Francisco Int. Airport [c]		Various	Physical/chemical		
Shell Oil Company	8	Petroleum refining	Activated sludge/carbon	38 01 56	122 07 44
Rhone Poulenc Basic Chemical Co.	9	Chemical manufacturing	Neutralization/pond	38 02 18	122 07 01
Zeneca Agricultural Products	10	Chemical manufacturing	Activated carbon/pond	37 54 30	122 19 40
Tosco Corp.	11	Petroleum refining	Pond/RBC/carbon	38 02 54	122 05 22
Union Oil Co.	12	Petroleum refining	Activated sludge/ pond/carbon	38 03 22	122 15 36
U.S. Steel	13	Iron and steel manufacturing	Physical/chemical	38 01 48	121 51 32

NOTE:
a. Figure 4-2 shows corresponding outfall locations.
b. Discharge through the Chevron U.S.A. outfall.
c. Discharge through the North Bayside outfall (see Table 4-9 and Figure 4-1).

TABLE 4-11 STATUS OF URBAN RUNOFF CONTROL PROGRAMS

MUNICIPALITIES CONDUCTING BASELINE CONTROL PROGRAMS

CITIES		COUNTIES
Belvedere	Petaluma	Marin
Benecia	Ross	Napa
Calistoga	San Anselmo	Solano
Corte Madera	San Rafael	Sonoma
Fairfax	Sausalito	
Larkspur	Sonoma	
Mill Valley	St. Helena	
Napa	Tiburon	
Novato	Yountville	

ENTITIES CONDUCTING COMPREHENSIVE CONTROL PROGRAMS

LOCALE	PERMITTED ENTITY	COMPLETED CHARACTERIZATION OF STORMWATER QUALITY AND RUNOFF POLLUTANT LOADING?	DATE PERMITTED
Santa Clara County	Santa Clara Valley Nonpoint Source Pollution Control Program	Yes	1990
Alameda County	Alameda County Urban Runoff Clean Water Program	Yes	1991
San Mateo County	San Mateo County Stormwater Pollution Prevention Program	Yes	1993
Contra Costa County	Contra Costa Clean Water Program	Yes	1993
Vallejo	City of Vallejo	No	Applied in 1994
Suisun City	City of Suisun City	No	Applied in 1994
Fairfield	City of Fairfield	No	Applied in 1994

TABLE 4-12 POTENTIAL CONSEQUENCES AND IMPACTS OF DREDGING AND DREDGED MATERIAL DISPOSAL

Consequences	Impacts
Bottom disturbance	Mastication of sediment-inhabiting organisms; smothering of organisms living in or on the bottom; habitat disruption
Suspended solids loading	Abrasion and clogging of gills (fish and clams); impaired respiration, feeding, and excretory functions; reduced water pumping rates (clams); retarded egg development and reduced growth and survival of larvae
Dissolved oxygen reduction	Reduced efficiency of oxygen uptake by aquatic organisms; increased stress on organisms resulting in reduced ability to meet environmental and biological demands
Mobilization of toxicants adsorbed to sediments	Uptake and accumulation by aquatic organisms
Release of biostimulatory substances (nitrogen, phosphorus, ammonia)	Stimulation of algal growth; ammonia toxicity

TABLE 4-13 GOALS OF LTMS

1) Maintain those channels in the SF Bay Estuary which are necessary for navigation, in an environmentally and economically sound manner and eliminate unnecessary dredging activities in the region

2) Conduct dredged material disposal activities in the most environmentally sound manner

3) Maximize the use of dredged material as a resource

4) Establish a cooperative permitting framework for dredging permit applications

TABLE 4-14 LTMS PARTICIPANTS

EXECUTIVE COMMITTEE

- Corps of Engineers, South Pacific Division, Commander
- U.S. EPA, Region IX, Regional Administrator
- State Dredging Coordinator
- San Francisco Bay Conservation and Development Commission, Chairperson
- San Francisco Bay Regional Water Quality Control Board, Chairperson

MANAGEMENT COMMITTEE

- Corps of Engineers, San Francisco District, District Engineer
- Corps of Engineers, South Pacific Division, LTMS Program Manager
- U.S. EPA, Region IX, Regional Administrator
- San Francisco Bay Conservation and Development Commission, Executive Director
- San Francisco Bay Regional Water Quality Control Board, Executive Officer
- State Water Resources Control Board, Executive Director

POLICY REVIEW COMMITTEE

- Other state and federal agencies with an interest in San Francisco Bay Area dredging (e.g., U.S. Navy, California State Department of Boating and Waterways, State Lands Commission)
- Bay Area ports and marinas
- Environmental and fishing organizations
- Development interests and other interested parties

WORK GROUPS

- Staff of RWQCB Chair of In-bay studies
- Staff of BCDC Chair of Upland/Non-aquatic and Reuse studies
- Staff of U.S. EPA Chair of Ocean studies
- Varying levels of participation by the organizations listed above

IMPLEMENTATION COMMITTEE

Ad-hoc leadership and varying levels of participation by the organizations listed above

TECHNICAL/SCIENCE ADVISORY PANEL

Semi-annual meetings of panel by five experts in the areas of:

- Physical processes,
- Chemistry,
- Benthic community analysis,
- Sediment toxicology, and
- A representative of the Corps of Engineers' national laboratory.

TABLE 4-15 DREDGED MATERIAL VOLUME TARGETS

ANNUAL

The following volume targets shall be utilized each calendar year (i.e., January to December) at each aquatic disposal site:

Alcatraz Island (SF-11)	4.0 million cubic yards
San Pablo Bay (SF-10)	0.5 million cubic yards
Carquinez Straits (SF-9)	2.0 million cubic yards (Normal Water Year)[a] 3.0 million cubic yards (Wet Water Year)

MONTHLY

The following volume targets shall be utilized on a monthly basis at each aquatic disposal site:

Alcatraz Island (SF-11)	October - April	1.0 million cubic yards
	May - September	0.3 million cubic yards
San Pablo Bay (SF-10)	Any month	0.5 million cubic yards
Carquinez Straits (SF-9)	Any month	1.0 million cubic yards

NOTES:

a. Water year classifications are designated by the California Department of Water Resources (DWR). The DWR water year begins on October 1 and is based on unimpaired flows as defined in the State Board's Water Rights Decision 1485.

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TABLE 4-16 KEY TO FIGURE 4-5: INACTIVE MINE SITES

#	Mine	Associated Mineral	#	Mine	Associated Mineral
1	Snowflake	magnesite	30	Hillsdale	mercury
2	Palisade	silver	31	Silver Creek	mercury
3	Silverado	silver	32	Winegar	manganese
4	La Joya	mercury	33	Fable Manganese	manganese
5	Hastings	mercury	34	Western	magnesite
6	St. John's	mercury	35,36	Maltby	magnesite
7	Borges	mercury	37	Keller	magnesite
8	H. Corda	mercury	38	Queenbee No. 1	manganese
9	Cycle	mercury	39	Blackhorse	manganese
10	Franciscan	mercury	40	Black Eagle	manganese
11	Chileno Valley	mercury	41	Jones Group	manganese
12	Gambonini	mercury	42	Mexican Deposits	manganese
13	Union Gulch	copper	43	Pine Ridge	manganese
14	Leona Heights	silver	44	April	mercury
15	Alma	silver	45	Cristobal	mercury
16	Black Diamond	manganese	46	San Francisco	mercury
20	Buckhorn	manganese	47	San Pedro Pit	mercury
21	Man Ridge	manganese	48	Enriquita	mercury
24	Section 14	coal	49	San Mateo	mercury
25	Newman	chromite	50	Senator	mercury
26	Livermore Coal	coal	51	Guadalupe Mines	mercury
27	Pendarin	coal	52	Hooker Creek	copper
28	Camp 9	manganese	53	Marine Magnes Div.	magnesium salts
29	Challenge	mercury			

TABLE 4-17 EXISTING AND POTENTIAL BENEFICIAL USES OF WETLANDS

BENEFICIAL USE	TYPE OF WETLAND				
	MARINE	ESTUARINE	RIVERINE	LACUSTRINE	PALUSTRINE
AGR		❍	❍	❍	❍
COLD			❍	❍	❍
COMM	❍	❍			
EST		❍			
FRESH			❍	❍	❍
GWR	❍	❍	❍	❍	❍
IND		❍	●	●	
MAR	❍				
MIGR	❍	❍	❍	❍	
NAV	❍	❍	❍	❍	❍
PROC					
REC-1	❍	❍	❍	❍	❍
REC-2	❍	❍	❍	❍	❍
SHELL	❍	❍	❍		
SPWN	❍	❍	❍	❍	❍
WARM			❍	❍	❍
WILD	❍	❍	❍	❍	❍
RARE	❍	❍	❍	❍	❍

NOTE:

❍ Existing beneficial use
● Potential beneficial use

TABLE 4-18 SUMMARY OF LOCAL AGENCY UNDERGROUND STORAGE TANKS (UST) PROGRAMS (AS OF APRIL 1992)[g]

JURISDICTION/AGENCY	PROGRAM START DATE	STAFF	CASES	COMMENTS
ALAMEDA COUNTY				
County Health Department	10/91	7.5	392	d,e
Alameda County Water District (Fremont, Union City, Newark)	5/88	2.5	286	a,c,e
CONTRA COSTA COUNTY				
County Health Services Department	1988	7	>270	c,e
MARIN COUNTY				
City of San Rafael	2/90	1	98	c,f
NAPA COUNTY				
Department of Environmental Management	5/89	2.3	152	a,e
SAN FRANCISCO COUNTY				
County Public Health Department	6/91	3	90	c
SAN MATEO COUNTY				
County Department of Health Services	1988	5	600	b
SANTA CLARA COUNTY				
Santa Clara Valley Water District	3/87	13	1134	a,b,d,e
SOLANO COUNTY				
County Health Department	1/92	1	30	c
SONOMA COUNTY				
County Health Department	4/88	8.75	360	a,e,d

NOTES:

a. Guidance Document is available, contact agency.
b. Agency may close soil-only pollution cases without review by RWQCB.
c. Program is self-funded; agency does not have LOP contract with State Board.
d. Program is both self-funded and funded through a LOP contract.
e. Agency oversees other related activities, including one or more of the following: tank and pipe line inspections, well permitting and inspection, Hazardous Materials Management Plan review, and groundwater protection program oversight.
f. The City of San Rafael contracts out some of its inspection and oversight work to private consulting firms. Responsible parties are billed for oversight costs.
g. For more up-to-date or detailed information, please contact the local agency directly.

TABLE 4-19 OPTIONS FOR FUTURE MANAGEMENT STRATEGIES AT GROUNDWATER CLEANUP SITES

CONTINUE EXISTING APPROACH:

Develop site specific cleanup levels utilizing Resolution Nos. 68-16 and 92-49, MCLs, and risk assessment.

ADOPT MORE STRINGENT APPROACH:

Require clean-up levels based exclusively on background or a stringent risk-management requirement (e.g., 10^{-6} excess cancer, etc.).

STREAMLINE EXISTING PROGRAM:

Adopt Basin Plan amendments or a general Regional Board Order with a standardized process for dischargers to identify investigation, remediation, and clean-up level requirements.

Develop a decision process whereby individual site and pollution information could be used to determine specific clean-up levels.

Develop clean-up levels and policies for individual groundwater basins or sub-basins based on designated beneficial uses.

Establish procedures to change clean-up standards, including long-term monitoring and hydraulic controls, when the Regional Board concurs that existing clean-up technology is no longer operating efficiently or will not meet clean-up standards.

Improve access to geographical information system-based data bases to assist in identifying critical groundwater resources.

DEVELOP AND IMPLEMENT REGIONAL OR SUB-REGIONAL MITIGATION PROGRAMS:

Identify conditions under which measures to mitigate the effect of pollution above prescribed clean-up levels should be considered by dischargers.

Identify potential mitigation alternatives such as regional groundwater programs in individual basins that will have a net benefit of protecting groundwaters.
